

Technical Datasheet

Product name: aluminium alloys
Version: 1.2 / en
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Printing date: 07.03.2013
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PRODUCT

Massive aluminium alloys like slabs, ingots, sows.

USE OF THE PRODUCT

Industrial use. Metal processing and fabrication.

SUPPLIER

AMAG Casting GmbH
P.O. Box 35
A-5282 Ranshofen

phone: 0043 7722 801-0
casting@amag.at
www.amag.at

COMPOSITION/INFORMATION ON INGREDIENTS

Substance	EC number	REACH Registration number	Concentration (%)
Copper	231-159-6	01-2119480154-42-xxxx	≤ 6
Zinc	231-175-3	01-2119467174-37-xxxx	≤ 16
Silicon	231-130-8	01-2119480401-47-xxxx	≤ 19.6
Iron	231-096-4	01-2119462838-24-xxxx	≤ 5.0
Titanium	231-142-3	01-2119484878-14-xxxx	≤ 0.25
Manganese	231-105-1	01-2119449803-34-xxxx	≤ 1.5
Magnesium	231-104-6	01-2119537203-49-xxxx	≤ 10
Lead	231-100-4	01-2119513221-59-xxxx	≤ 0.3
Tin	231-141-8	01-2119486474-28-xxxx	≤ 20
Chromium	231-157-5	01-2119485652-31-xxxx	≤ 0.6
other components			
single	-	-	≤ 0.05
total	-	-	≤ 0.5
Aluminium	231-072-3	01-2119529243-45-xxxx	residual

PHYSICAL AND CHEMICAL PROPERTIES

Type: slabs, ingots, sows
Colour: silvery or silver grey (also when hot)
Odour: odourless
Density (20°C): 2.2 – 2.8 kg/dm³ (depends on the chemical composition)
Range of solidification: 510 -657°C (depends on the chemical composition)
Boiling point: approx. 2500°C
Thermal expansion coefficient: 22 – 24.1 x 10⁶ 1/K (depends on temperature and alloying materials)
Thermal conductivity: 70 – 232 W/m x K
Combustion heat: 31 mJ/kg
Solubility in water: almost insoluble
Solubility in acids and alkalines: soluble with generation of hydrogen in strong acids and alkalines (except oxidising acids).
Dangerous reactions: Danger of explosion when molten aluminium gets in contact with water (sudden violent release of steam; special risks from the substance, its combustion products or hot gases).

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ECOLOGY AND TOXICOLOGY

Does not pose any health hazard or ecological hazard under normal conditions of use and as delivered.

Gases which are generated during melting or welding of the product present only low health risks. Ozone, nitrogen oxides and ultra violet radiation can be generated during MIG-welding or plasma-oxygen-cutting of aluminium alloys.

Dust and fine particles can be generated during processing of aluminium alloys.

HANDLING

Bundled ingots, which are kept together by belts, should be handled with attention during charging and discharging, because belts could have become loose during the transport and the ingots are not properly secured any more. Pay attention when cutting through tight belts!

For handling of **molten metal**: the use of protective clothing (flame retardant), gloves and safety glasses or face shields is required. Recently cast products may still be very hot, but don't have a warning colour change. Avoid touching metal in casting areas! The movement of molten aluminium has to be carried out using suitable and approved refractory lined containers. Be careful to use only preheated or specially coated and rust free tools in contact with molten aluminium.

When **fume or dust** is generated during processing of massive metal provide adequate ventilation and explosion protection if necessary.

FIRE FIGHTING MEASURES

Massive aluminium does not present fire or explosion hazards as delivered. Use fire fighting extinguishing methods suitable to surrounding materials and conditions.

The surface of solid aluminium can have hidden gaps and breaks in which moisture can be accumulated. This could be an explosion hazard when these products are charged into molten metal. Moist material has to be dried and preheated before charging them.

Aluminium in form of small chips, dust and fines may be ignitable. Fine particles in contact with water or humidity in air may release flammable gases in hazardous quantities. Do not use water for fire fighting in case of fine particles.

Molten metal may react violently with water. Unsuitable extinguishing agents are water and foam!

STORAGE

Suitable storage areas should be clearly marked. Products intended for remelting must be stored in dry area, carefully inspected and preheated (more than 120°C core temperature) before charging into molten metal.

TRANSPORT INFORMATION

No restrictions, because product is no dangerous medium.